Large Thrombosed Basilar Artery Aneurysm Presenting with Incongruous Left Hemianopia

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Dear Editor,

The basilar artery, a major blood vessel in the brain, supplies blood to the brainstem and posterior cranial fossa, especially the cerebellum and occipital lobes. The basilar artery is also responsible for the blood supply of the auditory and vestibular nuclei, as well as the cranial nerve nuclei that control the muscles of the head and neck.

There are two main complications associated with the basilar artery: an occlusion of the artery and an aneurysm. The occlusion of the basilar artery can give rise to serious neurological symptoms such as dizziness, double vision, difficulty speaking, and paralysis or even death if left untreated. The basilar artery aneurysm can result in ocular movement disorders such as sixth nerve palsy, horizontal gaze palsy, skew deviation, and internuclear ophthalmoplegia due to its compression of mid-brain or pons. While diplopia is common in the case of basilar artery aneurysm, visual field defect is very rare, with only few previous reports. To our knowledge, this is the first report of an incidentally discovered thrombosed basilar artery aneurysm with an isolated visual field defect of atypical incongruous left hemianopsia without any other symptoms in South Korea.

A 67-year-old man visited our clinic, complaining of non-specific visual disturbance fluctuating throughout the day and night for the duration of six months. His best corrected visual acuity was 1.0 in both eyes, and ocular movements were full. Incongruous left hemianopsia was found incidentally in the visual field test (Figure 1A, B), and no abnormal finding was seen in the optical coherence tomography (OCT). There was no abnormal finding in the central nervous system examination, but the brain magnetic resonance imaging (MRI) and four-vessel angiography revealed an unruptured large fusiform basilar artery trunk aneurysm (3.9 X 3.5 cm) (Figure 1C). The patient is under regular examination without any surgical intervention because the aneurysm could not be removed due to its large size. After eight months since the initial visit, the visual acuity decreased to 0.1 in the right eye and to 0.7 in the left eye, and visual field defect has aggravated over time.

The symptomatic manifestations of basilar artery complications are often from either compressive symptoms or vascular events. Compressive symptoms result from mass effect of the dilated vessels on cranial nerves and the brainstem. The most common cause of homonymous hemianopia is a lesion in the optic radiations or the occipital lobe. However, this patient showed no sign of infarction in the occipital lobe. In this case, the right shift of the optic chiasm due to the compression of aneurysm in MRI resulted in the incongruous left hemianopsia. With suprasellar neoplasm as the predominant cause, homonymous hemianopia is rarely caused by direct aneurysmal compression. The implication of an artery in the circle of Willis was evident in the direct aneurysmal impingement of the optic tract in few cases, but the severe basilar artery dolichoectasia is an extremely rare cause of compression
of the optic tract. This displacement is known to contribute to the optic atrophy and the decrease in visual acuity, but the patient demonstrated no bilateral optic disc pallor and vision loss due to supposedly shorter duration of compression.

In terms of aneurysm of the basilar artery, most common presenting symptom is ocular movement disorders. In addition, sensory neural hearing loss has been reported as the first presenting symptom in the basilar artery aneurysm. Whether the cause of the visual field defect is from the compression or ischemia, the visual defect is often accompanied by other symptoms. However, this case of basilar artery aneurysm presented with a sole visual field defect without any other systemic or ocular symptoms. In conclusion, we should acknowledge that incongruous left hemianopia is possible due to the direct compression effect of basilar artery aneurysm and keep in mind that it can be the only ocular finding associated with the disease.

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Key messages: Basilar artery aneurysm usually presents diplopia due to cranial nerve palsy. This case report shows a patient with visual field loss without ocular movement disorders in a basial artery aneurysm.
References


Basilar Artery Aneurysm with Incongruous Left Hemianopia

Figure legend

Figure 1. A. Magnetic resonance imaging showed a 3.9 X 3.5 cm-sized large basilar artery aneurysm with internal thrombosis. The aneurysm (white arrow) is compressing the optic chiasm to the right. B. Four-vessel angiography revealed a huge dilated fusiform basilar artery aneurysm (white arrowhead). C. Visual field test showed incongruous left hemianopia in both eyes.